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GE 449.3 (Sections 02, 04)

(Instructors: Richard Burton, Denard Lynch)

Midterm Examination

Tuesday, March 2, 2004

Time Allowed: 60 Minutes

Materials allowed: Text, Notes, EGP Act.

Instructions:

- For choice questions, including True /False, circle the letter, number or word of the *best* choice. Blanks *may* require a single word, several words or a small phrase to complete, including prepositions or articles. (Note: there is *no penalty* for guessing.)
- Any unqualified references to 'Association', 'member' or 'council' are assumed to be of the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS).
- Any unqualified reference to "engineer(s)" can be assumed to mean

	Term	Phrase	Answer
a	Normative inquiries	Partial ignorance, uncertain outcomes, knowledge of the past and monitoring	e
b	Moral autonomy	The advisability of undertaking a project	i
c	risk	Two or moral obligations, duties, rights goods, or ideals come into conflicts with one another	j
d	Virtues	Right conduct is regarded as whatever directly benefits oneself	f
e	Engineering as experiments	Requires sophisticated knowledge, group commitment to public good and self regulation	g
f	Pre-conventional level (Kohlberg)	Engaging in a potentially dangerous sport	Voluntary risk
g	Professional occupations	Regards moral rules as primary	
h	Utilitarianism	Moral conduct and principles of action are people's own	b
i	Risk-benefit analysis	Unclear to parties which moral consideration or principles apply to their situation	Vagueness
j	Moral dilemmas	Clarifying the meaning of concepts, principles and issues in engineering ethics	Conceptual Inquiry
		The potential that something unwanted and harmful may occur	c
		Desirable features of character	d
		Seek to identify values that that should guide individuals and groups	a
		Most good for most people	h
		Knowledge of material and sufficient information to make informed decisions	Informed consent

2) The member of the Provincial Legislative Assembly who is responsible for the Engineering and Geoscience Professions Act is the Minister of Highways + Transportation

3) APEGS is self regulated and self governed under the Act.

4) The following statement from the Act defines: Practice of Professional Engineering
 "any act of planning, designing, composing, measuring, evaluating, inspecting, advising reporting, directing or supervising, or management any of the forgoing.....environment"

5) Three types of licenses that can be issued under the Act are:

1) Annual license

2) Restricted license

3) Temporary license

6) [True / False] APEGS is run by volunteers; however, even if these volunteers use "due diligence" in all procedures, they are not protected under the law.

→ They can still be sued but due diligence will help them win

- 2) 7) Consider the situation faced by Robert Williams, the structural engineer in the TrueSteel case. Cite elements from the APEGS' Code of Ethics that, if used as guidance, could be a possible cause of his dilemma:

2 Code of Ethics 20(2) (a) hold paramount safety of public ...
(c) act as faithful agents of their clients ...

- 2) 8) For an identifiable subject, the notion of "informed consent" or "valid consent" requires that the following conditions be met:

2 1) Consent given voluntarily
 2) Consent based on rational information in understandable form
 3) Information needed to make decision widely disseminated

- 2) 9) List the four main types of ethical theories

2 1) Duty Ethics
 2) Right Ethics
 3) Utilitarianism (Act, Rule)
 4) Virtue Ethics

- 3) 10) List the title (or briefly describe) five of the student presentations given by groups in your section up to this point in time:

3 1) Downloading music off of internet
 2) Ethics of Prolonging Life
 3) Ethics of Gun Registration
 4) Ethics of Cloning
 5) Ethics of dumping nuclear waste in Saskatchewan
 (Chris Wong, Claire Sirois, Erin ...)

- 2) 11) What was the name of one of the two presenters from APEGS, and what was his/her responsibility within the Association?

2 Bob MacDonald - Lawyer and Engineer Dennis Paddock - (President?)

- 3) 12) List several reasons why a "professional athlete" does not satisfy the generally accepted definition of a learned professional:

3 Must have specialized training from an educational institution
Must be an occupation not a hobby - Sport doesn't qualify as an occupation, for the most part it's a hobby
Must accept moral responsibilities to the public as well as employers or clients - Athletes don't really have moral responsibilities as far as reaching as professionals

- 4 13) Given the following scenario, describe in a very brief form how individuals who subscribe to the four main types of ethical theories would approach the situation.

Robert is a third year engineering student who has been placed on probation for a low grade point average, even though he knows that he is doing the best he can. A friend offers to help him by sitting next to him and "sharing" his answers during the exam. Robert has never cheated on his exam before but this time he is desperate.

Virtue Ethicist:

Cheating is dishonest + it is not a desirable characteristic or virtue - wouldn't do it

Rights Ethicist:

All students have right to fair exam, not fair if Robert cheats - wouldn't do it

Duty Ethicist:

Robert has the duty to honestly complete the exam - he wouldn't cheat

Utilitarian:

The most good for the most people from Robert's point of view is not cheating because if they get caught, both guys are in trouble

- 2 14) Professional Codes of Ethics can be helpful even though they may also have limitations.

List two possible beneficial roles as well as two limitations:

Benefits:

Support for those who seek to act ethically
Protect Status Quo

Limitations:

Vagueness
Conflict - Codes often conflict

change can't be made From complaint of the day

- 2 15) People are generally willing to assume a high level of personal risk if they feel that they have complete control of the decision.

- 2 16) People are generally willing to expend less effort or resource to achieve a "gain" than to avoid a loss.

- 3 17) Industrial Standards are generally considered to benefit the consumer (public in general). However, there are some drawbacks to standardization. In point form, describe one positive advantage of standards, and one potential drawback. (Hint: consider items like bolt or screw threads, battery voltages, lumber dimensions)

Advantage: Standards help safe guard public by ensuring a product is safe

Disadvantage: Meeting standards may incur more primary costs for the manufacturer.

- 2 18) The public makes an assessment of trustworthiness based on information from a variety of sources that contribute to their experience and thus their knowledge. Name three main sources of this information:

1) Media

2) Past experience

3) Experience of others (acquaintances)

- 2 19). "Divine Command Ethics" can be described as:
- a) Acts are morally right when they follow "the rules"
 - b) Moral obligations arise because people have rights.
 - 2 c) Right actions are commanded by God; wrong actions are forbidden by God
 - d) During a declared war, right actions are those that follow orders from a higher command.

- 2 20) Alisdair MacIntyre, a virtue ethicist, considered "professional responsibility" a virtue that had several components. Indicate which of the following he included in this "virtue":
- self direction: - self understanding, good moral judgment, moral autonomy, commitment, self discipline, integrity (Included or Not Included?)
 - 2 • public spirited: - focused on good of others, clients. Non maleficence as a minimum, strive for beneficence. (Included or Not Included?)
 - team work: - with all other groups, individuals (Included or Not Included?)
 - proficiency: - competence (Included or Not Included?)

- 2 21). In addition to the knowledge regarding product failures gained through experience, Testing is commonly used to predict safety performance for new products.

- 2 22) It is virtually impossible to eliminate all risk no matter how thorough or complex the design might be. Where there is a risk of fatality due to a failure, a design concept known as Safe Exit should be used whenever possible to minimize the risk to potential victims.

- 2 23) People's perceptions of, and reactions to risks are affected by a number of variable factors including their background and personal experiences. Briefly describe other factors that typically affect people's sensitivity to risk or disasters:

- 2 1) whether the risk is voluntary or involuntary: we take more voluntary risks
2) The consequences of the risk (nature of risk) how likely? what if it happens?

- 2 24) Collegiality
Team Work ("shared power and authority vested amongst colleagues") is considered an important virtue for engineers.

- 6 25) The United State's space program can be considered an example of "engineering as a social experiment". Consider the case of the Challenger explosion, and briefly describe one element of this case that illustrates where responsible experimentation **was** exercised.

6 Even though it took a while, responsible experimentation was practised when Roger's request for a Seal Task Team was granted. Resources were actually put to work on the assessing of the seals.

- 3 26) Consider the conversation between Robert Williams, the structural engineer in the TrueSteel case, and his friend Jimmy Chan (also an Engineer) concerning Robert's dilemma. What part of the Act (cite a specific element(s)) imposes an obligation on Jimmy, and under what circumstances should action be taken?

3 code of Ethics 20(2) (a) report to association any alleged illegal

27)

- 14 a) Using the roles of Professional Codes of Ethics as a guide, develop a code of ethics for owners of pets in the City of Saskatoon.

1) Pet owners shall hold paramount the safety and welfare of Public

2) Pet owners shall conduct themselves to courtesy + respect towards public (clean up do-dos) (keep on leash)

3) shall report any illegal actions with regards to pet (abuse, etc)

4) Pet distributors shall present clearly the risks + possible consequences of owning a pet.

5) Pet distributors shall offer services, advise only in their areas of competence

- 6 b) Briefly discuss how your Code deals with one of the common limitations of codes of ethics.

By respecting the public a code of ethics can be paralleled to fairness in towards client

1. Pet owners reporting any can be paralleled to activities For ob are virtually identical

Codes

Public safety (4)

Pet Safety (cold, evir, etc) (4)

Others(6)

Knowledge of Bylaws

Respect for Bylaws

Knowledge of pet

Health (vets etc)

Limitations

Good, 6, Fair 4, poor 2

vagueness

Contradictions

others

4

6

4

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